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To the Graduate Council:

I am submitting herewith a dissertation written by Sean M. Murphy entitled "A Path Model of SCCT Applied to the Rural Appalachian Community." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Psychology.

Erin, E, Hardin, Major Professor

We have read this dissertation and recommend its acceptance:

Erin G. Hardin, Jacob J. Levy, Melinda M. Gibbons, Patricia N. E. Roberson

Accepted for the Council:

Dixie L. Thompson

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

A Path Model of SCCT
Applied to the
Rural Appalachian Community

A Dissertation Presented for the
Doctor of Philosophy
Degree
The University of Tennessee, Knoxville

Sean Michael Murphy

August 2023

DEDICATION

For Becca,

There is no variable that could ever moderate my love for you.

ACKNOWLEDGEMENTS

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ABSTRACT

The current study investigates the relationship between variables in the Social Cognitive Career Theory model as applied to a population from rural Appalachia. A path model was conducted in order to see which variables are significantly related, as well as which paths differ from the hypothesized model, in this population. Results suggest that there is a significant association between college going self-efficacy (CGSE) on choice actions (college planning behaviors; CPB), as well as direct paths from barriers and postsecondary supports (PSS) to pursuing an education after high school. Indirect effects were also found from PSS and Barriers to CPB through CGSES. Surprisingly, no direct path was found between college outcome expectations and any of the other variables, with the exception of PSS. Implications and limitations of the study suggest that future literature should investigate how these distinctions in the model may affect the theory within the rural Appalachian population, as well as collectivist and/or rural populations more generally

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CHAPTER ONE

INTRODUCTION AND GENERAL INFORMATION

Rural Appalachia comprises 107 counties within the larger Appalachian region, which extends over 13 states from Mississippi to New York (Appalachian Regional Commission [ARC], 2022). This region has been found to have a particular culture that is more aligned with collectivist cultures than individualistic ones. As with other collectivist cultures, community members in rural Appalachia rely heavily on family and community ties (Keefe, 2005). For this, among other reasons, rural Appalachia is considered a collectivist subculture within the United States (Gore, 2011) -- widely considered one of the most culturally individualistic countries in the world (Triandis, Bontempo, Villareal, Asa, & Lucca, 1988). Unfortunately, rural Appalachia is often associated with stereotypes about community members being poor and uneducated (Baird, 2017; Harkins & McCarol, 2019). Of course, as with most stereotypes, this is an inaccurate and unfair representation of the area and its educational accomplishments. Indeed, with an evolving work environment, high schools in rural Appalachia have made it a priority to prepare students for a postsecondary education (Kotting, 2022), including (but not limited to) an associate's or bachelor's degree.

Given the distinctiveness of rural Appalachia and the need to have more students pursue an education after high school, it follows that research into what would make this happen is necessary. It is important, moreover, that this research be based in well-established theory to inform strategies and intervention recommendations. The aim of this study is to apply Social Cognitive Career Theory (SCCT; Lent & Hackett, 1994), one of the most well-supported theories in modern vocational and educational research.

Social Cognitive Career Theory (SCCT) has been a seminal model that is designed to explain

how individuals make plans and take actions toward a particular educational or vocational career. Specifically, beliefs about one's self-efficacy (whether or not they feel capable of successfully completing specific activities) and outcome expectations (the extent to which they anticipate positive results from the activities) affect the extent to which they are interested in attempting the activity. These core variables are also affected by supports and barriers in the environment. Studies have shown that the model is efficacious with a broad range of populations, although significant differences emerge over certain categorical variables such as gender (Turner et al., 2019), race (Fouad et al., 2017), and socioeconomic status (Flores et al., 2017).

Although SCCT has been well studied in other communities, this has not been the case with rural Appalachia, where research has been largely sparse. Still, an emerging body of research conducted with rural Appalachian high school and college students has yielded a number of compelling results. Among the many insights the theory has shown is a strong relationship between postsecondary family and community support and college-going self-efficacy, as seen in traditionally collectivist cultures (Murphy et al., 2019). Specifically, the extent to which individuals have more postsecondary supports, they will have a bolstered sense that they can make it to and through college. The inverse relationship holds true for barriers that students face.

Interestingly, multiple studies have found that the impact of barriers on self-efficacy and college outcome expectations is blunted within the rural Appalachian community. Quantitative analysis has repeatedly demonstrated that supports toward a postsecondary education hold a much greater effect bolstering self-efficacy than barriers have diminishing it (Rosecrance et al., 2019; Murphy et al., 2019). The same has been found with college going outcome expectations: supports is a much stronger predictor of a student's beliefs about what would come of attaining a postsecondary

certificate or degree than barriers (Murphy et al., 2019). Using qualitative methods, Gibbons and colleagues (2019) revealed that rural Appalachian high school students understand and recognize the barriers they face; nonetheless, they have a bootstrapping mentality and a positive future outlook that allows them to persist in the face of obstacles to their postsecondary aspirations.

The evidence that SCCT applies to rural Appalachian is accruing; however, the full model has yet to be tested within this population. Thus, the current study was created to determine if SCCT adequately explains career development for rural Appalachian high school students, in order to provide recommendations for effective interventions to support young people in seeking out and completing postsecondary education. In particular, this study investigates how many of the variables in the SCCT model (including barriers, supports, self- efficacy, outcome expectations, and choice actions) relate to one another and if these relationships align with what the theory would hypothesize. In addition, this study also seeks to investigate whether or not categorical variables affect results. In particular, whether gender and/or the level of caregivers' educational attainment, moderate levels of self-efficacy and choice actions.

Another way this study builds upon the previous body of research is by incorporating choice actions, in this case college planning behaviors (CPB), into the analysis. In the past, SCCT research on postsecondary education has studied interests, an important predictor of actions; however, not the same as actual actions students choose to take. Using a novel, recently validated measure of CPB (Cook et al., 2021), this research investigates the behaviors students take toward going to college (e.g., researching admission requirements) and how it relates to the other variables in the model.

Although a substantial body of research on SCCT exists, and an emerging body with rural Appalachian participants, this study expands upon previous research in at least two significant

regards. First, the full model will be tested, including choice actions as the key dependent variable. This addition holds significance for SCCT research, as this crucial outcome variable has yet to be studied. Second, fit will be evaluated using path analysis, a robust statistical method that can be used to determine whether or not significant paths are found in theory-consistent ways.

Research Questions

1. Does SCCT adequately explain career development for rural Appalachian high school students?
2. To what extent are gender and college generation status relevant to variables in the model?

Organization of the Study

Chapter 2 provides an overview of the extant literature on topics addressed in the study. In efforts to provide clarity and continuity, the literature review begins by discussing rural Appalachia and the set of both strengths and barriers unique to the area. The strengths of the community, which are myriad and have contributed to the development of a rich culture, are intended to help provide a broader and more accurate picture of a historically misunderstood cultural group. Additionally, a review of barriers will be provided with the hope that acknowledging the challenges of the community will not contribute to the deficit-based lens through which it is typically viewed. Following this, an overview of Social Cognitive Career Theory will be explored. This section will include the research broadly, how it applies to rural Appalachia, and the implications it has within the framework of education.

Chapter Three includes demographic information about participants, as well as descriptions of each measure employed in the study. Chapter Four includes results from the study, including path analysis, comparison of group level means, as well as tests of indirect effects and moderation. In Chapter Five, the dissertation will end by summarizing the results and their implications, along with

areas of future research and the limitations of the study. Finally, the chapter will end with a concluding section describing the most significant findings and the impact they will have on the body of knowledge.

CHAPTER TWO

LITERATURE REVIEW

Rural Appalachia

Rural Appalachia appears at first blush to be a place full of contradiction: it is known as much for its awe-inducing vistas as it is for a kind of chronic poverty sensationalized in so-called “poverty porn” (Baird, 2014). In popular culture, Appalachia has been characterized as a monolithic cultural clump, a place populated by trailers inhabited primarily by uneducated, poor White people. This stereotype gained momentum after the bestselling success and subsequent film adaptation of the controversial book *Hillbilly Elegy* (Vance, 2016). The narrative paints the community with a paternalistic and condescending gaze, reifying this stereotype initially brought about by Robert Kennedy’s trip to Appalachia in 1968 (Algeo, 2020). However, native rural Appalachians and scholars have widely criticized the novel, not so much by condemning the narrative but combating it with alternative narratives that are both more accurate and reflect the core values of the region (Ledford et al., 2020).

In this study, I aim to contribute to this effort by putting forth a portrait of rural Appalachia based upon strengths, while still addressing barriers (Gibbons et al., 2019). Yet, it is crucial to put the place in both temporal and geographic context. Indeed, no study of rural Appalachia can be complete without acknowledging the very real regional differences, specifically between those in rural and non-metro (defined as having ~68 people per square mile (psm) and metro counties (~317 psm; Pollard & Jacobsen, 2017). Of the roughly 25 million people living in Appalachia, only about 6.5 million reside in non-metro counties; yet, within this relatively small population patterns emerge that suggest there are distinct differences between these two parts of Appalachia.

It is difficult to grasp what this means in absolute terms without understanding how this relates to land mass. Consider, for instance, that over 40% of Appalachia's land mass is considered rural, while less than 23% of its population lives there (Appalachian Regional Commission [ARC], 2022). Although Appalachia spans 13 states, most have less than half their population living in rural Appalachian counties. Indeed, the differences between rural and metro Appalachian counties across the region may be even more stark than those between Appalachian and non-Appalachian counties within a state.

In comparison to metro Appalachian counties, rural Appalachian suicide and alcohol disease mortality rates are 15% and 13% higher, respectively (Meit, 2017). Considering the effects on functional impairment, people in rural Appalachia report 10% more mentally unhealthy days (Meit, 2017) and are 3.9% more likely to receive disability, a figure that actually puts rural Appalachia 6.1% higher than the national average (PDA, Inc. & The Cecil G. Sheps Center for Health Services Research, 2017). Differences in education are similarly marked: residents in metro Appalachia are nearly twice as likely to have any postsecondary education beyond high school, 21% compared to rural Appalachia graduation rate of 10.8% (inversely, that means 89.2% do not have any type of professional certificate or associate degree). The difference between percent of the population earning a bachelor's or more is equally striking: 29.8% for those living in metro areas, 15.9% in non-metro areas (Pollard & Jacobson, 2017).

Historically, the comparatively low percentage of individuals who obtained a bachelor's degree had not been a significant issue for the area, where lucrative coal mining jobs were once abundant and did not require any type of postsecondary education (Keefe, 2005). Although a dangerous occupation, union protests in the mid-20th century led to extensive benefits and good

wages. However, these coal mining jobs have largely disappeared, going from a high of 500,000 workers in the 1930s to just under 30,000 in 2017 (National Mining Association, 2017). Moreover, few low education job opportunities have been created that offer livable wages or benefits (Boynton et al., 2013). This partially explains why rural Appalachia has a disproportionately higher percentage of the population living beneath the poverty line (22%). This figure is nearly seven percentage points higher than the Appalachian region as a whole and the nation, where 15.6% and 13.8% of individuals live beneath the poverty line, respectively (Boynton et al., 2013).

Sadly, this is where the narrative typically stops. However, if *this* is where our understanding of rural Appalachia ends, it is as misinformed as it is pejorative. Indeed, the strengths and values of rural Appalachia have allowed this population to develop a unique resilience in the face of the many adversities. Surely there are alarming discrepancies between metro and rural Appalachia, as well as the rest of the country. Yet, much of what has buoyed this region over the last three centuries has been a set of core cultural values. Although there is a paucity of research into rural Appalachian culture, the extant literature suggests that the community has values more collectivist and interpersonal than in dominant, contemporary American culture (Leon & Hoffman, 2016).

Some have described rural Appalachian culture as a collectivist subculture (Gore, 2011). Although the individualistic values prevalent in American society can still be seen in an “up from the bootstrap” mentality (Welch, 2011), rural Appalachians also embrace collectivist and interdependent values. More specifically, Gore (2011) includes a litany of collectivist values and practices that have been identified in rural Appalachia: a strong sense of family and kinship ties, cosleeping, community as social organization and identity, a strong desire to avoid conflict, strong religious values, reticence toward change, attachment to local geography, and distancing outsiders. While not an exhaustive list,

many of these attributes are commonly seen in more collectivist societies, far from the norm of traditional American values, a country often held as the archetypal individualistic society.

Given the unique characteristics of rural Appalachia, as well as its similarities with collectivist cultures, it is helpful to investigate the ways in which culture may affect the educational choices and career decisions of rural Appalachians. Social Cognitive Career Theory (SCCT) is one theory that attempts to explain the different factors that contribute to these choices and decisions.

Social Cognitive Career Theory

Social Cognitive Career Theory began as a career-specific application of Bandura's more general social cognitive theory (1986). The initial model proposed that two cognitive factors (self-efficacy and outcome expectations) influence one's sense of agency and promotes the formation of interest, goals, and actions. Moreover, the factors do not operate independently, but respond to environmental contingencies. This creates an interplay between person, behavior, and environmental factors that reciprocally determine our actions and goals. Indeed, these three factors are influenced by and influence one another: the individual enacts behaviors and receives information from the environment about the effects of those behaviors, which then informs future behaviors (Goldhaber, 2000).

SCCT takes the social cognitive model and applies it to career and educational choices. The theory is designed to render specific hypotheses to see what forces influence choice and behavior when developing and pursuing a particular vocational path. The core model of Social Cognitive Career Theory has been researched widely in the areas of education and career (Lent et al., 1994; Lent et al., 2006). Because the model is intentionally designed to allow for testable hypotheses, a flurry of research has been conducted since its inception (Brown et al., 2017).

Moreover, the model facilitates investigation into how these variables may differ among categorical groups, including those based on race (Fouad et al., 2017; Lent et al., 2018), gender (Rosecrance et al., 2017; Turner et al., 2019), and socioeconomic status (Flores et al., 2017; Turner et al., 2019). Thus, we see the interplay between cognitive, behavioral, and environmental factors interacting in a reciprocal fashion to facilitate or hinder the progress toward particular career and educational pursuit.

SCCT Across Groups

Recently several studies have evaluated SCCT to determine the fit across groups. Particularly, the core relationships in SCCT appear to have a good fit with different races (Lent et al., 2013), individuals of differing socioeconomic statuses (Turner et al., 2019), and gender (Lent et al., 2018). Although the general pattern appears to hold, significant differences do emerge. For instance, students from low SES backgrounds report a greater number of barriers coming from a greater variety of sources (Turner et al., 2019). Considering gender, Lent and colleagues (2018) found that self-efficacy was more negatively correlated with barriers for men than women, although women had a stronger negative correlation between supports and barriers. In the same study, those categorized as minorities in the sample showed a stronger negative association for the path from barriers to both self-efficacy and outcome expectations. However, the results also revealed a stronger path from supports to outcome expectations and choice goals (Lent et al., 2018).

Significant differences have also been identified with the Asian-American population. For instance, Fouad and colleagues (2008) found that the perception of family support significantly bolstered self-efficacy beliefs and positively increased outcome expectations about career decision making. Perception of family support also affects educational ambitions and career choice (Hui &

Lent, 2018). Moreover, Tang and colleagues (1999) conducted a path model with 187 Asian American college students and found that family background influenced participants' career choices significantly more than their own personal interests. Given the similarities in collectivism between rural Appalachia and other collectivist cultures (e.g., East Asia), we might expect to see similar differences in the rural Appalachian population.

Using a novel measure, Murphy and colleagues (2019) found that this pattern does indeed apply to rural Appalachian high school students: community and family supports seem to be especially influential in this population. For instance, comparing perception of supports to those of barriers, hierarchical regression analysis revealed that the perception of supports explained twice as much variance in college going self-efficacy than barriers and five times as much variance in college outcome expectation. Additionally, an unexpected finding regarding barriers suggest that obstacles appear to take on a different meaning in rural Appalachia.

Using qualitative interviewing techniques, Gibbons and colleagues (2019) found high schoolers in the community recognized that they were facing significant barriers (due to issues such as low SES and lack of educational preparation); however, the actual effect of these barriers on their future aspirations were minimized. Instead of a severe impediment, barriers became something to overcome. Specifically, two major themes emerged about what allowed them to persist in the face of barriers: having a bootstrapper mentality and a positive future mindset allows them to persist in the face of the very real obstacles they face (Gibbons et al., 2019).

Although significant differences emerge with these contextual affordances, previous research has also found a good fit of the model with rural Appalachian students. Quantitative studies with rural Appalachian sample have found that key SCCT variables (self-efficacy, outcome expectations,

supports, and barriers) were predictive of vocational and educational pursuits and interests (Ali & McWhirter, 2006; Gibbons et al., 2019).

From these findings, the familial and interpersonal supports that are at the core of Appalachian values appear to facilitate behaviors by fostering an “up by the bootstrap” mentality. This mentality, in turn, may solidify the belief that members of the community can succeed, despite very real obstacles. Given some of these particulars to the region, it is possible that the SCCT model could be modified to enhance fit within a rural Appalachian population. Specifically, we expect that characteristics of rural Appalachian culture might be pronounced, namely increased perceived supports and decreased perceived barriers (Keefe, 2005). Both qualitative and quantitative research is growing within rural Appalachia; however, no one has yet conducted a test of the overall model fit using analysis such as path modeling.

Finally, one group that has shown significant differences in the SCCT model are prospective first-generation college students (PFGCS). PFGCS are defined as currently enrolled high school students who would be the first in their family to pursue any type of postsecondary education for any length of time (Gibbons & Borders, 2010). PFGCS have less perceived support for college-related activities and expectations within their family, compared to their continuing generation peers (Bloom, 2007). Additionally, PFGCS report less parental assistance with scholastic planning (Horn & Nunez, 2000).

This lack of support is due to a variety of factors, including parents not knowing how to navigate the college application process and ambivalence about the potential benefits of having a degree, given the high financial cost (Bloom, 2007). Still, many parents provide support and Kantamneni and colleges (2018) found evidence that parental support for current first-generation

college students is associated with greater vocational self-efficacy, outcome expectations, and student engagement. Regardless of parental support, PFGCS also face instrumental barriers, such as reduced access to rigorous secondary coursework, fewer opportunities to take standardized tests and heightened responsibility for contributing financially to the family (Bloom, 2007).

These barriers may restrict the ability for PFGCS to take the necessary college planning behaviors to facilitate the process of applying to and attending college, something many high schoolers struggle with.

College Planning Behaviors

Despite being a key variable in SCCT, little research has been conducted on one of the outcomes of the model: choice actions. In the context of postsecondary education, there is a dearth of research investigating the college planning behaviors (e.g., touring a college, applying for the FAFSA) students make in order to achieve the goals and aspirations they may set. Indeed, even if students say they plan to go to college, they must also be taking instrumental, proactive steps in order to make those plans happen. (If you have met a high schooler, this sounds like a tall order indeed). This gap between plans and behaviors takes on a more urgent tenor when we consider that nearly half of students report feeling unprepared for college, despite having plans and making goals (YouthTruth, 2017).

From a theoretical standpoint, incorporating manifest actions into the model allows us to better understand the associations between choice actions and other key variables in the SCCT model. For any student, but especially those in rural Appalachia, translating goals into actions requires support. Fortunately, as reviewed above, supports appear to have an outsized effect in this population. From a more practical standpoint, a review of existing surveys assessing college planning behavior suggests

that most teachers and counselors are constructing them independently (Cook et al., 2021). Aside from being time consuming, teacher made surveys appear to lack the psychometric properties that would help ensure that they are validly and reliably measuring choice actions students are taking. Thus, having an established survey would help school and college personnel to get a more objective sense of how often students in their school are following through with aspirations and goals they may be making.

In a first step toward making this research possible, Cook and colleagues (2021) created and validated a measure to assess student choice actions. The College Planning Behavior (CPB) survey demonstrated strong psychometric properties, as well as associations with both college- going self-efficacy and outcome expectations. Although these results suggest a relationship among variables, incorporating CPB into a path model will further establish how much planning for postsecondary education is affecting the actual actions high schoolers are taking.

Current Study

Clearly there is much to be gained by evaluating the full SCCT model fit in a variety of populations using a path analysis. This study will test model fit with students who attend high school in rural Appalachian communities, as well as the moderating effects of gender and first- generation status.

Research Questions and Hypotheses

- 1) Does SCCT adequately explain career development for rural Appalachian high school students?
- 2) To what extent are gender and college generation status relevant to variables in the model?

Hypothesis 1: Based on prior correlational research finding reliable associations among SCCT variables with rural Appalachian students (Ali et al., 2006), I hypothesize that the SCCT model will provide a good fit with the population.

Hypothesis 2: Based on prior research (Lent et al., 2010), I expect that self-efficacy will mediate the effects of barriers and supports on choice actions, such that these contextual variables will have an indirect effect on choice actions through self-efficacy.

Hypothesis 3: Based on prior research (Rosecrance, et al., 2019) I expect female students to evidence more self-efficacy, while showing no significant differences for other variables in the model.

Hypothesis 4: Based on prior research (Bloom, 2007), I expect prospective first- generation college students to have significant differences on all other variables in the model. I predict PFGCS will have less perceived supports, self-efficacy, outcome expectations and choice actions. Conversely, I also expect barriers to be higher for prospective first-generation students.

Hypothesis 5: Based on prior research (Kantamneni et al., 2018), I expect that prospective first-generation status will significantly moderate the paths of perceived supports and barriers to self-efficacy.

Hypothesis 5a: The associations of perceived supports to self-efficacy will be weaker for PFGCS compared to continuing education peers.

Hypothesis 5b: The associations of barriers to self-efficacy will be stronger for PFGCS compared to continuing education peers

Hypothesis 6: Based on prior research (Rosecrance et al., 2017), I predict that gender will moderate the effect of self-efficacy on choice actions, such that the association will be stronger for females compared to male students.

CHAPTER THREE

MATERIALS AND METHODS

Participants

Participants included 190 students from three public high schools in two rural Appalachian counties categorized as economically distressed; that is, included in the bottom 10% in national unemployment rate, per capita income, and poverty rate (ARC, 2017). Thirty-seven percent of the participants identified as male ($n = 70$), 60% identified as female ($n = 113$), and 3% identified as other ($n = 6$). The sample consisted of 45% ninth grade students ($n = 87$) and 54% tenth grade students ($n = 103$). Students were considered first-generation college students if they indicated that their parents did not have any education after high school (Gibbons et al., 2006). In the current study, 24% of students ($n = 45$) were prospective first-generation college students, 55% ($n = 102$) were prospective continuing education students, and 21% ($n = 38$) responded that they were unsure of their parents' level of educational attainment.

All students participated in a vocational intervention funded by the National Institutes of Health (NIH), aimed at exposing students to postsecondary options (e.g., certificate, associates, bachelors, or graduate degrees) in STEMM fields. The 6-week intervention is based in SCCT theory, aiming to bolster both college-going self-efficacy and outcome expectations. Students develop an understanding of their values, interests, and career goals. The intervention then walks students through the career exploration process using O'Net, then provides practical information about the postsecondary education process (e.g., applying for the FAFSA). A more detailed explanation of the program and its implementation can be found in Gibbons and colleagues (2019) and Gibbons, Brown, and colleagues (2019). The intervention itself was designed by experts in vocational psychology and

prospective first-generation college students. Those delivering the intervention in high schools consisted of undergraduate and graduate students trained in cultural humility with the rural Appalachian population. Importantly, many of the facilitators were raised in the area and, therefore, provide models of rural Appalachian postsecondary success. At the end of the intervention all students were given a battery of measures using Qualtrics survey software.

After passing validity checks and tests for normality (see below), the final sample included 185 participants. Of this sample, 115 (61.6%) identified as female and 70 (37.8%) identified as male. Considering their parental education level, 102 students (55.1%) indicated that at least one parent had some experience with postsecondary education and were considered continuing generation college students; 45 (24.3%) of students indicated that their parents had no experience and were considered first-generation college students; 38 (20.5%) indicated that they were unsure about their parents' level of education.

Measures

College-Going Self-Efficacy Short Form (CGSE-SF). This measure assesses the extent to which high schoolers perceive their ability to persist in college. The scale asks students to indicate on a 4-point Likert response scale (1 = not at all sure to 4 = very sure) the extent to which they are sure about a number of efficacy related prompts (e.g., "I could pay for college each year"). The CGSES-SF is a 14-item measure that is a recent revision from the original college-going self-efficacy scale (CGSES; Gibbons & Borders, 2010), whittling the original 30- item scale using confirmatory factor analysis (CFA). Hardin and colleagues (2021) found that this short form captured the full breadth of the original measure and demonstrated psychometrically sound properties, including a strong inter-item reliability ($\alpha = .93$), high correlations with other SCCT

variables in predicted directions, and strong factorial invariance across groups. In the current study, the CGSES-SF showed strong reliability, ($\alpha = .94$).

College Outcome Expectations (COE) Scale (Flores et al., 2008). A 19-item scale used to assess how much students value the outcomes associated with having a college education and degree (for example, one prompt asks: “*If I get a college education, then I will be better able to achieve my future goals in life*”). Students use a Likert-type 1-10 scale to indicate their level of agreement with items, with higher scores indicating greater agreement. Item responses are averaged, with higher scores representing more positive perceptions of attending college. The COE scale has had high internal consistency with rural Appalachian high school students in prior research ($\alpha = .94$; Rosecrance et al., 2019). In the current study with the same population, the COE showed strong reliability ($\alpha = .94$).

Perception of Educational Barriers – Revised. Adapted from a longer 45-item (McWhirter, 1997), Gibbons (2005) revised the measure to be 28-items. The current scale uses items to indicate the level of perceived barriers to education and career aspirations students face. For each item, students indicate the likelihood it would be a barrier to continuing education after high school (e.g., “Not enough money” or “Teachers don’t support my plans”). Responses are made on a 4-point Likert-type scale ranging from 1 (not at all likely) to 4 (definitely) with higher scores indicating more perceived barriers. The barriers survey has found good internal consistency in prior research ($\alpha = .93$, Gibbons, 2005). The barriers scale showed acceptable reliability in this study ($\alpha = .90$).

Assessment of Postsecondary Supports (APSS). This 25-item survey measures the perception of supports among prospective college-going students to pursue education after high school. The measure includes items about support from friends and family (e.g., *My family members care about*

me” and “*my friends and I talk about planning for college*”). The survey also has items assessing school and community supports (e.g., *I have access to a “mentor” who could offer me advice and encouragement about planning for college* and *I could get helpful academic assistance if I needed it*). Students rate their level of agreement for each item on a 5- point Likert-type scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores reflect higher levels of perceived supports to pursuing a postsecondary education. Internal reliability in the previous study was strong ($\alpha = .94$; Murphy et al., 2019). The APSS showed strong reliability in this study as well ($\alpha = .94$)

College Planning Behaviors (CPB). This survey assesses whether or not students have engaged in behavior that would prepare them for two-year or four-year college, such as “I have started exploring careers.” CPB items are divided into three categories of planning behaviors: exploration, concrete activities, and supplemental activities. All 45 items on the measure are dichotomous, with students responding either “yes” or “no” (coded 1 and 0, respectively) about completing a listed activity. Instructions specified that an activity could be marked yes only if it had been completed, not if they had only planned to complete it. Indicated behaviors were averaged, yielding scores ranging from 0 to 1, thus representing the percentage of items that were endorsed. Higher scores reflect more planning behaviors. The current study showed that the CPB measure had acceptable reliability ($\alpha = .88$).

CHAPTER FOUR

RESULTS

Preliminary Analysis

The analysis began by first cleaning data so that only valid responses were included.

Responses without parental consent and student assent were excluded from the data set. As a means for assessing student attention, responses were screened for insufficient effort as a safeguard against participants randomly answering items (Meade & Craig, 2012). Within each survey, a response item was embedded directing students to choose an answer (e.g., “Please select D”). Participant responses that did not have the correct answer on a particular measure were coded as invalid for analyses that involved those measure(s); however, responses were included when students responded correctly to the validity check on other measures.

Next, tests of missingness were conducted to determine whether data were missing completely at random. Using Little’s (1988) missing completely at random (MCAR) test, the item level data were below 10% and the data was considered MCAR (Parent, 2013). In order to detect outliers, box plots were created so that items that fell outside of the whiskers could be detected. Three univariate outliers were identified on COE and one on PSS. Both outliers fell within an acceptable 3.5 standard deviations from the mean (Maxwell & Delany, 2004) and did not significantly affect the overall mean of the scales when omitting the outliers. Therefore, the four outliers were retained for the final sample. After this, a screening for multivariate outliers was completed. One significant multivariate outlier was identified using Mahalanobis distances and was omitted from the data set.

Data Analysis

To address research question one, regarding SCCT model fit within the rural Appalachian population, I began by conducting a path analysis in AMOS 28 using maximum likelihood estimation. This method is robust toward violations of normality, given that certain tests of normality are met. In particular, if variables are not within what is considered acceptable ranges of skewness and kurtosis it is inappropriate to conduct path analysis. Considering the former, extreme values are those that have an absolute skewness value greater than 2.0 (Ryu, 2011). In the present study skewness ranged from .037 for PEB-R to -.70 for CPB. Similarly, analysis of kurtosis values indicated that all variables fell within an acceptable range (absolute value no more than 7; Ryu, 2011), with the lowest value (-.08) for APSS and the highest value (.37) for PEB-R. Means, standard deviations, Cronbach's alphas, and correlations for each measure are included in Table 1.

Manifest variables appearing in the model included scores on CGSES-SF, COE, APSS, CPB, and PEB-R. The first model conducted included all possible paths, as depicted in Figure 1. An a priori path model was developed based upon prior research on SCCT in rural Appalachia (Ali et al., 2006, Cook et al., 2021). The first model conducted included all possible paths, as depicted in Figure 1. A chi-square test was used to evaluate model fit, in addition to three other statistics in order to assess fit in multiple ways. Specifically, I used the Root Mean Square Error of Approximation (RMSEA; Browne & Cudeck, 1993), the Tucker-Lewis Index (TLI) and the Comparative Fit Index (CFI). Criteria used to assess fit included an RMSEA smaller than .06, as well as a CFI and TLI larger than .95 (Hu & Bentler, 1999). Although fit indices were conducted, the model evaluation results showed perfect fit. This is because all paths were estimated, making the model just-identified, with zero degrees of freedom.

Path and Mediation Analysis

Results showed that four paths were significantly associated. College-going self-efficacy was significantly and positively associated with postsecondary supports ($\beta = 0.53$, $SE = .06$, $p < .05$), whereas barriers were significantly and negatively associated ($\beta = -0.32$, $SE = .06$, $p < .05$; see Figure 1). When regression paths were conducted from COE to CGSES-SF, APSS, and PEB-R the only significant path was from APSS to COE, which revealed a positive association ($\beta = 1.14$, $SE = .09$, $p < .05$). Similarly, when regressing CPB on the other four variables in the model, only the CGSES-SF to CPB path was significant. Consistent with SCCT, a positive association was found with the CGSES-SF to CPB regression path ($\beta = 0.12$, $SE = .07$, $p < .05$). Finally, as predicted in the model, APSS and PEB-R were negatively correlated ($r = -.44$, $SE = .07$, $p < .05$).

In order to address hypothesis two, concerning self-efficacy mediating the effects of barriers and supports on choice actions, a series of tests for mediation were performed. The full model was retained when conducting tests of indirect effects. Because neither supports nor barriers had a significant direct effect on college planning behaviors, tests of indirect effects were conducted in order to determine if college going self-efficacy mediated these relationships. Although mediation cannot be analyzed directly, a series of regression analyses can be conducted to identify whether a mediating relationship exists.

Analysis of indirect effects showed that APSS had a significant total effect on CPB ($\beta = -0.45$, $SE = .07$, $p < .05$), as well as a significant indirect effect ($\beta = -0.31$, $SE = .06$, $p < .05$). Moreover, in a model where CGSES-SF was put in between CPB and APSS, a significant indirect path was identified ($\beta = -0.31$, $SE = .051$, $p < .05$). PEB-R, meanwhile, had a non-significant total effect ($\beta = 1.0$, $SE = .07$, $p = .15$) and significant indirect effect ($\beta = .049$, $SE = .011$, $p < .05$). Moreover, PEB-R

was found to have a significant indirect effect on CPB through CGSES ($\beta = .18$, $SE = .04$, $p < .05$).

Taken together, the results suggest that self-efficacy (CGSE- SF) fully mediates the relationship between postsecondary supports (APSS) and barriers (PEB- R) on choice actions (CPB).

Between Group Differences

To address research question two, regarding the effects of gender and prospective first-generation status, I began by comparing female and male students on all variables in the study. Hypothesis three conjectured that significant differences would be identified in mean scores of young women and men on CGSE-SF, consistent with prior findings (Rosecrance et al., 2017). The hypothesis also conjectured that no other significant difference would emerge on the other variables in the model (i.e., CPB, APSS, PEB-R).

In order to compare scores, a one-way ANOVA was employed. As expected, mean scores of CGSE-SF for women ($M = 2.76$) did significantly differ from men's scores ($M = 2.50$), $F(1, 182) = 5.71$, $p < .05$) with a small effect size, $\eta p^2 = .03$. As hypothesized, the mean of college planning behaviors for young women ($M = 6.86$) did not differ from that of young men ($M = 7.27$, $F(1, 182) = 1.12$, $p = .26$), nor did the mean scores of college outcome expectation for young women ($M = 7.08$) differ from those of young men ($M = 6.68$, $F(1, 181) = 3.58$, $p = .06$). However, the null hypothesis could not be rejected, as significant differences were also observed on two other variables in the model. In particular, the mean perception of barriers for young women ($M = 2.20$) was greater than their male peers ($M = 1.94$, $F(1, 182) = 0.71$, $p < .01$), with a moderate effect size ($\eta p^2 = .05$). Similarly, the mean perception of postsecondary supports for young women ($M = 3.32$) was significantly higher than those of young men ($M = 3.03$, $F(1, 182) = 25.35$, $p < .001$), with a moderate effect size effect size, $\eta p^2 = .051$. This suggests that young women have more perceived

supports, while also facing more perceived barriers.

Hypothesis four suggested significant differences between PFGCS and other students on all variables in the model. In order to test this, a one-way ANOVA was conducted comparing mean scores of CGSE-SF, APSS, COE, PEB-R, and CPB between those who are PFGCS, continuing generation students, and those who indicated they were unsure of their parents' educational attainment. This initial analysis revealed that, as anticipated, there were significant differences between the three groups on three variables: CGSE-SF [$F(2, 182) = 5.97, p < .01, \eta^2 = .06$], APSS [$F(2, 181) = 8.22, p < .01$], $\eta^2 = .08$, and CPB [$F(2, 182) = 5.68, p < .03, \eta^2 = .06$]. Contrary to my hypothesis, there was no significant difference identified between the mean of COE for PFGCS ($M = 7.13$), continuing education ($M = 7.51$) and unsure students [$M = 7.27, F(2, 180) = 1.992, p = .139$].

Additionally, results from post-hoc analysis using Tukey's HSD found college-going self-efficacy was lower for both PFGCS ($M = 2.48$) and unsure students ($M = 2.43$) compared to continuing education students ($M = 2.82$). Unsure and PFGCS did not differ from one another. Conversely, continuing generation students reported engaging in significantly less college planning behaviors ($M = 30.02$) than first generation ($M = 32.95$) and unsure students ($M = 34.78$). Once again, PFGCS and unsure students did not significantly differ from one another. Finally, post hoc tests on PSS showed that unsure students had lower perceived support ($M = 2.96$) than continuing generation ($M = 3.32$) and prospective first generation ($M = 3.13$). Prospective first generation and continuing generation students did not differ.

As a means of addressing hypothesis five, tests of moderation were conducted including first generation status as a categorical variable affecting the relationship between APPS / PEB-R and

CGSE-SF. Specifically, hypothesis 5a predicted that generation status would moderate the expected positive effect of postsecondary supports on self-efficacy. Meanwhile hypothesis 5b posited that PFGCS would moderate the deleterious effects of barriers on self-efficacy. For both of these analyses, evidence of moderation would suggest that the association between supports or barriers, on the one hand, and self-efficacy on the other, would differ depending upon prospective generational status.

To test these hypotheses the Hayes' (2017) PROCESS macro was employed using SPSS 26. In this analysis, the dependent variable was CGSE-SF, while APSS and PEB-R were included as predictors (all variables were standardized before interaction terms were constructed). An interaction term was created using generation status as a moderator. Results from the analysis did not support the hypotheses: the interaction of PEB-R x PFGCS was not significant ($b = -.04$, $SE = .04$, $t = -.94$, $\Delta R^2 = .003$, $p > .05$). The same pattern was observed with the APPS: ($b = 2.65$, $SE = -1.4$, $t = -1.4$, $\Delta R^2 = .004$, $p > .05$). This suggests that the relationship between self-efficacy and barriers, as well as supports, is the same, regardless of generation status.

Conducting the same analysis including gender as a moderating factor showed a similar pattern. Although the hypothesis predicted that gender would significantly moderate the association between CGSES and college planning behavior, it did not serve as moderator of this relationship ($b = -.54$, $SE = .05$, $t = -.575$, $\Delta R^2 = .002$, $p > .05$).

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

Summary of Findings

The purpose of this study was to investigate the fit of Social Cognitive Career Theory (SCCT) applied to postsecondary aspirations and actions of high school students within the rural Appalachian community. In addition to assessing the extent to which this influential theory applied to the population, I also incorporated the central (though understudied) variable of choice actions, or the actual behaviors students take to plan for college (e.g., applying for the FAFSA, researching schools). Moreover, I investigated how mean scores on these variables differ between prospective first-generation college students and their high school peers, as well as whether or not generation status moderated the relationships between certain variables in the SCCT model. Finally, similar analyses were conducted to evaluate whether or not gender would impact mean scores or moderate relationships in the model. Results from the study supported several elements of the theory; however, key differences also emerged.

General SCCT Model Fit

Most generally, the results showed good fit for some parts of the SCCT model in this population but did not find support for all predicted paths. Specifically, three paths hypothesized by the theory were significant: direct paths from self-efficacy to postsecondary supports and to college-going self-efficacy, and from college-going self-efficacy to college planning behaviors (see Figure 1). The latter association suggests that a student's belief in their own ability to make it to and through a postsecondary education affects the actual planning activities that would bolster the chance of attending college. This association between self-efficacy and choice actions is an important

advancement in SCCT research applied to education, as the operationalization and analysis of choice actions has not been investigated in the past. Indeed, this provides novel insight into the SCCT model, which would draw a direct connection between perception of self- efficacy and choice actions.

Tests of Mediation

In addition to the direct effect of self-efficacy on college planning behaviors, I also found theoretically-consistent paths from supports and barriers to self-efficacy. Tests of indirect effects showed that the influence of these proximal variables on college planning behaviors were mediated by self-efficacy (see Figure 2). That is, the results suggest that supports and barriers affect college planning behaviors only through self-efficacy beliefs. Previous research has found a similar mediated relationship between supports, self-efficacy, and interests (Lent et al., 2010).

College Outcome Expectations

Contrary to what the theory would posit, and previous research has suggested (Ali & McWhirter, 2006; Gibbons et al., 2019), college outcome expectations were not directly related to any other variable in the model with the notable exception of supports, which was positively associated with outcome expectations. This suggests that the expected outcome of receiving a college education within the rural Appalachian community is not significantly influential on student engagement in college planning behaviors and is also not affected by their college-going self-efficacy, as well as perceived barriers. On the other hand, the relationship between postsecondary supports and outcome expectations suggests that having community and family support for pursuing a postsecondary education improves expectations about what such an education could provide, which is consistent with past research (Bloom, 2007).

College Outcome Expectations and Self-Efficacy

Perhaps the most surprising and significant finding in the study was that college outcome expectations were not directly related to college-going self-efficacy. This finding is particularly remarkable, considering past research has found that self-efficacy is directly related to outcome expectations. Indeed, the influence of self-efficacy on outcome expectations is one of the most well supported associations found in the SCCT research literature (Brown & Lent 2013). Yet, this study suggests that outcome expectations are not affected by the level of self-efficacy.

At least two explanations could contribute to these findings. The first is in regard to culture. Although rural Appalachia has a rich culture steeped in perseverance (Keefe, 2004), real inequities do exist. For instance, the economic inequities and disadvantages found in the community affects financial-related planning for postsecondary opportunities (Cook et al., 2021) that might trump self-efficacy. In practical terms, it seems as though the belief that students have about whether or not they *can* go to college has no bearing on whether or not they *want* to. Perhaps, this outcome represents a function of familial and community devotion, a hallmark of collectivist culture. Yet, it might be likely that positive expectations about completing a postsecondary education are mitigated by the costs of leaving the community.

A second possible explanation for the results could reflect cohort differences. Specifically, this study was conducted exclusively with students who had only recently returned to in-person classes in the Fall of 2021. The effects of COVID-19, along with the multitude of changes it wrought on the practice of education --if not the concept of modern education all together -- are still largely unknown. Certainly, steep declines in postsecondary enrolment between 2019-2021 suggest that outcome expectations may have changed more broadly in this cohort of students (National Student

Clearing House Research Center, 2022).

College Outcome Expectations and College Planning Behaviors

A unique attribute of this study is that fit was assessed with the full model, including choice actions. This crucial variable in SCCT and postsecondary pursuits has not been investigated until this study. Although past research has found that COE is related to interests (Turner, 2019), these findings suggest that the same association is not present for the actual college planning behaviors (choice actions) students make.

Here again, cultural influences may explain these results. In this study, whether or not students actually plan to attend college seems unrelated to their beliefs about whether college has value. In this case, students may think a postsecondary education will not significantly benefit them or the community, but still take steps to plan for college. Moreover, it is likely that students are primarily engaging in these behaviors through school activities. In Tennessee, for instance, all students take the ACT, regardless of their postsecondary ambitions or attitudes.

Alternatively, it is possible that students expect college to have an abundance of value, but not engage in college planning behaviors, perhaps because they lack college-going self-efficacy. Both of these scenarios highlight the importance of self-efficacy within this population. If, as the results would indicate, college outcome expectations are unrelated to college planning behaviors, this suggests that the only direct, significant predictor of choice actions with this population is self-efficacy.

One potential reason that self-efficacy and college planning behaviors are unrelated to college outcome expectation is that these expectations are affected by generational attitudes toward higher education. Historically, rural Appalachian adults were able to attain well-paying blue-collar work

(Reeves, 2020) with little or no postsecondary education. However, jobs in these communities have decreased, while expectations for education in society have increased. Although these practical changes are occurring, lower expectations may still persist in rural Appalachia. Moreover, the cost of college yields two negative effects on the family. In addition to the financial cost of attending college, it also means one less earner in the household. Many teenage members of rural Appalachian families shoulder a full-earner status (Reeves, 2020).

Prospective First-Generation College Students

As anticipated, significant differences emerged between prospective continuing generation college students and both PFGCS and those who were unsure of their parents' level of education attainment. Specifically, continuing generation students were found to have higher amounts of perceived support and self-efficacy than PFGCS and unsure students. Surprisingly, PFGCS and unsure students endorsed engaging in more college planning behaviors than continuing education peers, despite having lower levels of self-efficacy. One explanation for this might be that these students participate in college planning behaviors as a function of activities that are designed to meet the needs of high need students (e.g., TRiO, AVID). Given that these planning activities are often obligatory, some students who are unsure of their parents' level of educational attainment may be participating in college preparatory steps (choice actions) in a perfunctory fashion; that is, engaging without fully investing in the experience. Indeed, if self-efficacy for attending and completing a postsecondary education is already low, results from the present study suggest that completing some of the tasks required for such an outcome does not appear to bolster this belief.

Unsure students did evidence a unique difference between both prospective first and continuing generation students in supports, where they reported having significantly less support than their peers.

There are many likely reasons that unsure students may perceive less support. For instance, postsecondary education may simply not be discussed at home. In fact, there may be ambiguity about the types of experiences parents have had in order to be in their current occupation. In many careers there may not be clear guidelines about what education requirements, opportunities and/or training experiences would be necessary to hold a particular position. Indeed, many entry level jobs have opportunities for professional development and managerial training that do not include a terminal certificate. Not being aware of whether these experiences happened through formal education or professional development suggests that postsecondary education may not be a topic discussed in the home.

Gender

Additionally, significant differences were found in the results when gender was considered. In one finding, young women reported higher levels of self-efficacy than young men, which is consistent with past research (Rosecrance et al., 2019). In a dispiriting but unsurprising result, young women also identified having more barriers toward postsecondary educational attainment, compared to young men. At the same time, young women also perceived having more postsecondary supports than their male peers. If the pattern holds across other populations, this may help to explain the growing trend internationally that men are not pursuing postsecondary experiences at the same rates as women (Stoet et al., 2020).

Tests of Moderation

Apart from path fit and differences in mean scores between groups, the second primary research question addressed in the study was whether or not there would be a moderating effect of gender and/or prospective generation status on other variables in the model. Specifically, gender was

hypothesized to moderate the relationship between self-efficacy and choice actions. Prospective generation status was hypothesized to moderate the relationships between contextual affordances (i.e., supports and barriers) and self-efficacy. Contrary to what was hypothesized, neither prospective first-generation status nor gender were found to moderate these relationships within the SCCT model. Although evidence of moderation was not found, this is consistent with what the original theory proposed by Lent and colleagues (1994), where no significant moderators were included or hypothesized.

Implications

An additional aim of this study was to identify whether or not SCCT, with all variables run together in a path model, fit this population. The particular paths that were found significant could be used to tailor interventions so that they can have a specific impact on rural Appalachian high school students. Although many of the predicted pathways between other variables in the model were found significant, only one out of the three hypothesized paths related to college outcome expectations were significant in the current study. Counter to previous findings evaluating the model with rural Appalachian high school students, college-going outcome- expectations did not have a significant relationship with self-efficacy, barriers, or college planning behaviors. However, consistent with the literature, postsecondary supports were significantly associated with outcome expectations.

One important implication of this finding is that interventions targeting students' college outcomes (e.g., discussing the costs and benefits of postsecondary outcomes) may not be as influential as those targeting self-efficacy. Thus, one recommendation for practice that may stem from these results is the modification of interventions used in this community. A well-established characteristic in rural Appalachia is the particular importance of family and community in decision

making. However, as noted previously, many parents in the region lack the experience with postsecondary education that could potentially enhance their perception of what a college education could mean for their children and family (Bloom, 2007). Therefore, future interventions should be designed to emphasize the impact of postsecondary outcomes on the family. For instance, at school and community events (such as PTA meetings and sporting events) information could be disseminated in a way that bolsters expectations. Without ignoring the costs of a postsecondary education, information could also emphasize how such an experience could lead to practical and necessary benefits to family prosperity, not to mention rural Appalachia more generally.

Indeed, this strategy could be especially impactful given that the only significant relationship found with outcome expectations was a positive association with postsecondary supports. As hypothesized by SCCT, students with more postsecondary supports were more likely to have higher levels of college outcome expectations. Previous research found that supports come from a variety of sources, including friends, school employees, and community members (Murphy et al., 2019). Considering the similarities between rural Appalachia and other collectivist communities, it would be especially important to provide interventions that target not only the students, individually, but also the many influencers in their lives.

Another aim of the current study was to identify whether or not choice actions, in this case college planning behavior, was predicted by self-efficacy. Results indicated that college-going self-efficacy was the primary indicator of college planning behavior. Considering that this is a crucial relationship within the hypothesized model, a number of recommendations could be made.

Specifically, school staff could engage students in self-efficacy building strategies by reinforcing college planning behaviors students have already taken. Similarly, it could be informative

and motivating to assess a student's particular interests so that more specific, individualized plans can be created. Teachers and school counselors, then, can collaborate to provide consistent feedback, reinforcing and celebrating when students' meet planning goals they set.

Another strategy that has shown success in building self-efficacy is providing peer mentors. Previous research has found the impact of peer mentoring on building self-efficacy in a number of ways. For instance, peer mentors help students feel more confident in their decision-making abilities. Perhaps just as importantly, peer mentors also help students navigate the often-confusing process of applying to postsecondary opportunities. Given that one of the challenges facing rural Appalachia is having fewer people in the community knowledgeable about the process (Bloom, 2007), this may be especially helpful with this population.

Areas for Future Research

Effects of COVID-19

As with so much of our world, this study was certainly affected by the COVID-19 pandemic. As such, it will be important for future research to consider how changes in school may have drastically shifted the perceptions about and expectations of a postsecondary education. Significantly, this is one of the first SCCT research projects conducted with a cohort of students living through such extraordinary circumstances. More specifically, this study indicates that particular attention should be paid to changes in students' outcome expectations that may have occurred as a result of the pandemic.

Given the strong evidence supporting past research with SCCT, including with rural Appalachian high schoolers, it is important to consider how the theory itself is impacted by seismic cultural shifts that occurred from 2020-2021. For researchers, the need to adapt our understanding of postsecondary pursuit has become even more pressing. In the last two years, a report from the

National Student Clearing House Research Center (2022) found that college enrollment declined by 6.6% from 2019 to 2021, meaning that more than a million fewer students pursued undergraduate enrolment. In just one year, from fall 2019 to 2020, over 20% fewer students elected not to enroll in college directly from high school. The pattern did not improve from Fall 2021 to 2022, with a year-over-year decline in undergraduate enrolment falling 9.4% (National Student Clearing House Research Center, 2022).

These numbers should sound a clarion call for researchers that changes in postsecondary pursuits among young people are real and pressing. The present study suggests that an important place to begin is by understanding how the pandemic is reshaping the role of college outcome expectations within the SCCT model. Indeed, the world after 2020 looks different than before and it is possible that SCCT should as well.

Quantitative and Qualitative Research

One area of future research that seems apparent from the findings is further exploration into the group of students who are unsure about their parents' level of educational attainment. In the current study, the size of the unsure group was larger than in past studies within the population (Rosecrance, 2019; Cook, 2021); however, whether or not this group represents one that is distinct from prospective college going students, as well as their continuing education peers, is an area still unresolved within the literature. Furthermore, students who are unsure of their caretakers' level of educational attainment is a category largely overlooked within the first-generation education literature. Considering that few studies have an option for "unsure" or "I don't know" with regards to caretakers' level of educational attainment, it seems both practical and logical that future research with prospective first generation college students incorporate such a category into their surveys.

Indeed, results found here suggest it is both theoretically and practically significant that this group be included as an option for students to endorse.

Moreover, because there is a dearth of research on the potential differences with students who are unsure of their generation status, this is a fruitful area of future research. Both quantitative and qualitative methods would help better understand this group of students. Quantitatively, tests of multigroup invariance can be conducted, where SEM models of SCCT can evaluate group level differences by comparing groups on various fit indices. This may help explain not only if there are differences but also where the differences are. Though SEM is a powerful tool that could give vital information, it cannot provide findings about the lived experience of these students. Qualitative methods, however, can be employed to gain a deeper understanding about quantitative findings.

Indeed, many of the variables and relationships in the model could be explored using qualitative means in order to achieve this vary goal. Clearly, past qualitative research within the rural Appalachian community (Gibbons et al., 2019) gleaned specific themes that help better understand the ways in which students in the community conceptualize barriers. Without having students explain their perceptions in their own words, such important insights would likely not have occurred. It is probable that further studies utilizing qualitative or mixed-methods designs would similarly lead to more nuanced explanations of the relationships identified in the present study.

Qualitative research could also help explain one of the more perplexing findings in the study. Currently, it is difficult to understand why students in the unsure group perform more college planning behaviors, despite being the group with the lowest self-efficacy. Perhaps qualitative methods having students explain their own experience could help elucidate the confounding quantitative results. Regardless of the methodology, it is important that future research investigate

whether or not a distinct unsure group is present in other cultures, or if it is a finding unique to Appalachian culture.

Limitations

For this study, all data were collected in the fall of 2021, a time of great uncertainty, as public schools were returning to in-person classes. It is difficult to believe that this context had little or no bearing on the findings. From a practical perspective, the organizational challenges public schools faced during this time have been well documented. For the purposes of this study, collecting data in newly reopened schools posed new challenges around navigating time and space for students to complete the measures. As a result, this may have built in more statistical error, given the circumstances in which it was collected. For instance, one practical limitation observed during the collection is that a number of students did not have adequate time to complete all measures. Because student assent was the final question in the survey battery, a number of student responses that were largely complete could not be included in the analyses.

Another limitation regards the disproportionate percentage of students endorsing being “unsure” about their caretakers’ level of education attainment (20.5%). A possible explanation for the large number of students within this category is that they are merely younger. For other studies within Appalachia, grade levels included 10th-12th graders, more than freshmen high schoolers. The current sample was made up primarily of 9th grade students (93%). It follows that students with less secondary experience would have less knowledge about the postsecondary process, including whether or not their caretakers had such experience.

An extension of this limitation, however, is that early intervention may be particularly helpful in addressing such ambiguity. Having students engage in college planning behaviors (especially those

that involve students' family members) early may result in a better understanding of their own familial experience with postsecondary education opportunities, including the processes involved in undertaking such an endeavor. Although the outcome of such an investigation is unclear, it is likely to spark conversations about postsecondary opportunities, which this study suggests might lead to a greater awareness of education level within the household, in addition to discussing both the positive and negative outcomes that might come about as a result of enrolling in a postsecondary education.

Further, limiting considerations that must always be observed when using self-report measures certainly apply here. For one, high school students in this study may have responded in socially desirable ways. That is, students may have consciously or unconsciously provided responses that are consistent with societal and scholastic expectations, even if they do not necessarily believe them. This is an especially important consideration in rural Appalachia, given the lingering and prevalent stereotypes about the community being uneducated. Additionally, all measures used ordinal Likert-type scales; therefore, exact intervals between choice options (i.e., "agree vs. "disagree") cannot be assumed. Indeed, there can be a wide spectrum between how students interpret these options, which must be considered when drawing conclusions about the specificity of the results.

Finally, there was little demographic variety in the sample. Although the sample was generally representative of the rural Appalachian population it also lacked diversity. Thus, any conclusions found should be interpreted with the caveat that nearly all participants were Caucasian and, therefore, results may not generalize to other populations.

Conclusion

This study is one of the first to incorporate postsecondary choice actions into the SCCT model. It also represents the first study to run the full model using path analysis in rural Appalachia. As such,

it revealed several significant findings, one of which was that outcome expectations were unrelated to self-efficacy and choice actions. This may be explained by the many cultural differences found within rural Appalachia, compared to other areas. Alternatively, it could be that expectations in the region changed during and after the COVID 19 pandemic. Therefore, future research on college outcome expectations is necessary and pressing to determine whether or not these effects are permanent or transitory.

Unlike outcome expectations, the value of support in the community was found to affect multiple variables in the model, including outcome expectations. One likely consideration for this conclusion is that the impact of supports is especially critical due to rural Appalachian cultural values that emphasize community and family bonds.

These findings also suggest that future interventions should leverage supports in the community in order to address the barriers students face. Taking an asset-based view of the region will help finetune and target scholastic interventions. More broadly, a more accurate and holistic understanding of the region and its people and culture, one that does not carry the traditional pejorative social perception of them, will be pivotal for the next generation. Indeed, affirming Appalachia's distinct and rich culture, steeped in perseverance and collective values, must be a cornerstone for college going expectations.

As a new generation of rural Appalachian students adjust to an ever evolving educational environment, it is crucial that dated stereotypes and deficits be moderated by the deep, rich cultural values that have existed within the community, the values that have made it strong and resilient for generations.

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APPENDIX

TABLE 1

Descriptive Statistics and Correlation Matrix

	<i>M</i>	<i>SD</i>	CGSES-SF	COE	APSS	PEB-R	CPB
CGSES-SF	2.63	0.74	(.94)				
COE	7.24	1.45	0.362	(.94)			
APSS	3.17	0.54	.663**	0.47**	(.94)		
PEB-R	2.13	0.58	-0.542**	-.205**	-.423**	(.90)	
CPB	32.87	7.34	-.624**	-.261**	-.478**	.313**	(.88)

Note. CGSES-SF = college going self-efficacy scale – short form. APSS = assessments of postsecondary supports. COE = college outcomes expectations. CPB = college planning behaviors. PER-B = perception of educational barriers revised.

**Correlation is significant at the 0.01 level (2-tailed). N = 185. Cronbach’s alphas displayed on the diagonal.

TABLE 2**Significant Paths**

	β	SE	p
APSS → CGSES-SF	0.53	.06	<.05
CGSES-SF → PER-B	-0.32	.60	<.05
APSS → COE	1.14	.09	<.05
CGSES-SF → CPB	0.12	.07	<.05

Note. CGSES-SF = college going self-efficacy scale – short form. APSS = assessments of postsecondary supports. COE = college outcomes expectations. CPB = college planning behaviors. PER-B = perception of educational barriers revised.

TABLE 3**Test of Indirect Effects**

	β	SE	p
APSS →CPB	-0.45	.07	< .05
APSS →CGSES-SF →CPB	-0.31	.051	< .05
PER-B→CPB	.01	.07	= .15
PER-B →CGSES-SF →CPB	.18	.04	< .05

Note. CGSES-SF = college going self-efficacy scale – short form. APSS = assessments of postsecondary supports. COE = college outcomes expectations. CPB = college planning behaviors. PER-B = perception of educational barriers revised.

Note: the full model was retained when conducting tests of indirect effects.

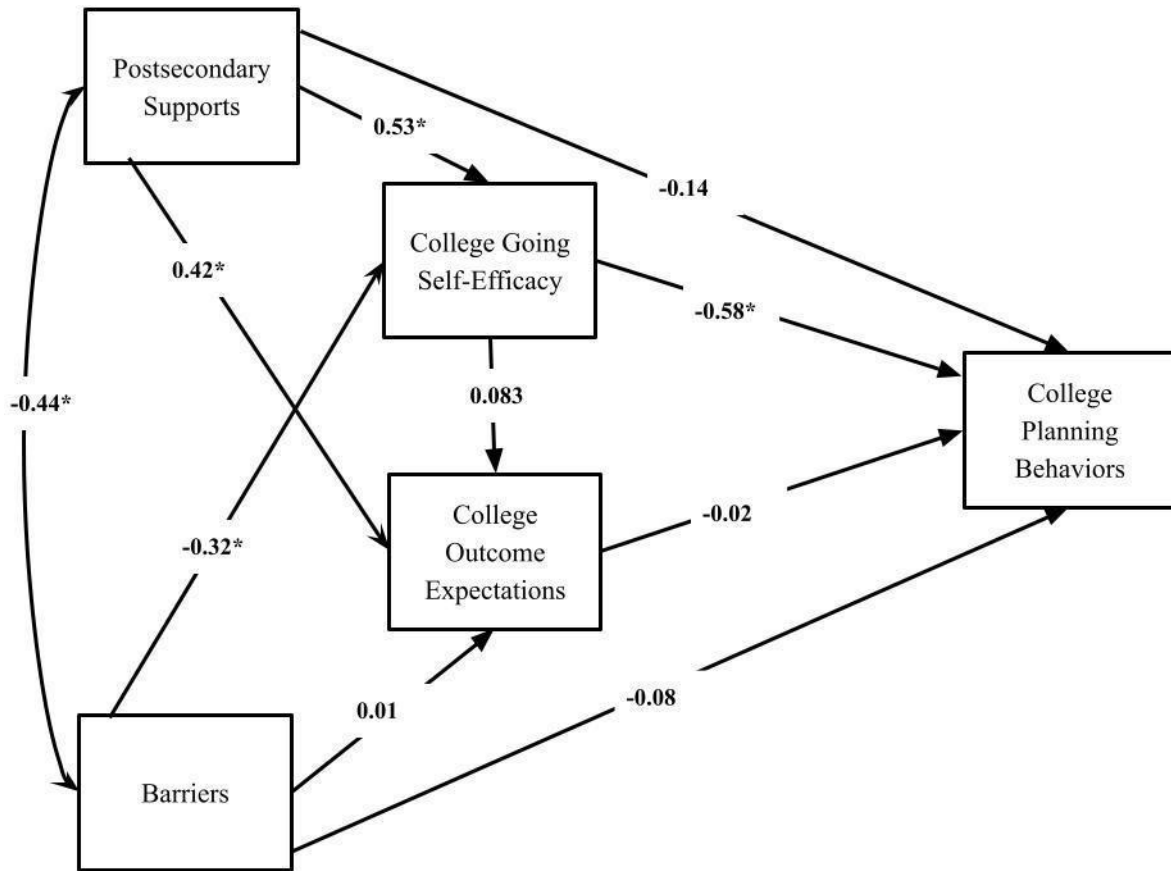


FIGURE 1
The Full Path Model

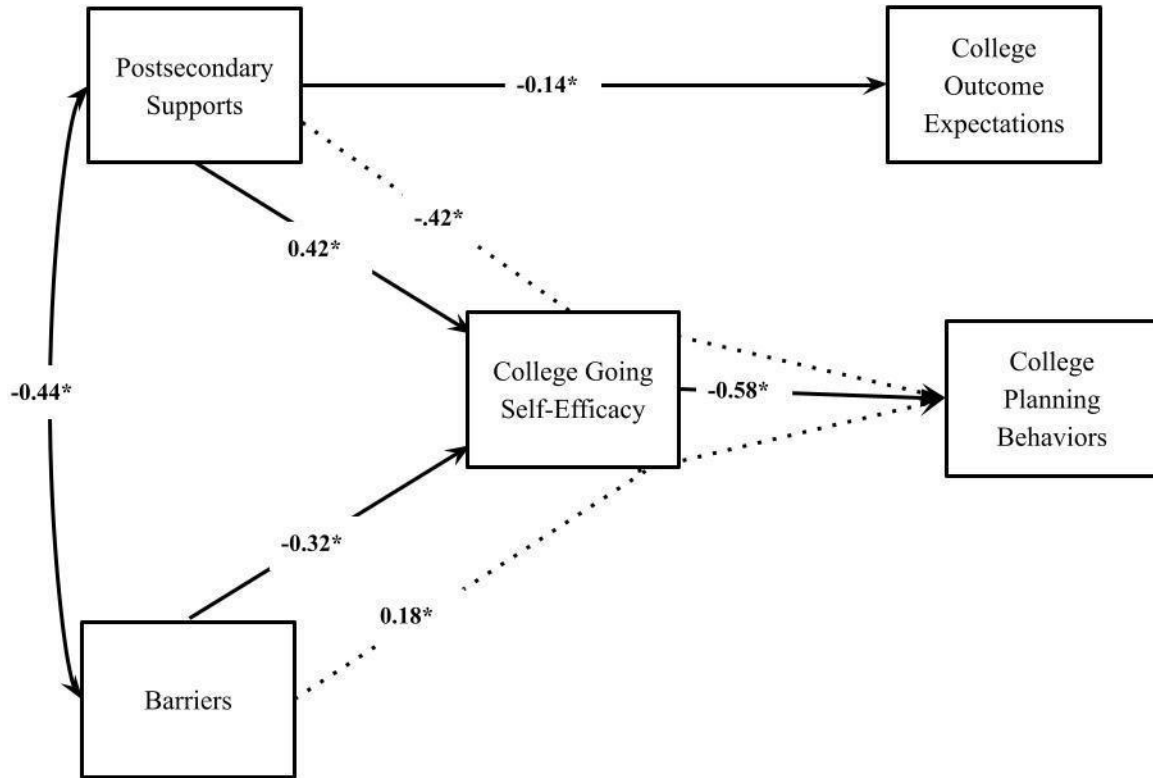


FIGURE 2

Model Including Indirect Effects

Note: The full model was retained when conducting tests of indirect effects.

VITA

Sean Murphy received his Bachelor's in Fine Arts degree from New York University with a dual major in Film Studies and Psychology. After graduation, he taught special education high school math in rural North Carolina and served as an administrator after earning a Master's in School Administration from North Carolina State University. After a decade in public education, Sean began working on his Counseling Psychology Ph.D. at the University of Tennessee. His research interests include rural Appalachia, mental health stigmatization, and help seeking behavior.